imation

"For me the greatest beauty always lies in the greatest clarity"

Gotthold Ephrain Lessing

Imation – not all high definition is the same

What is High Definition Television?

A new format is about to be unveiled to the TV and movie-viewing public: High Definition Television (HDTV).

Closely following the advent of HD ready plasma and LCD screens in our homes, HDTV will capitalise on the increased resolution available through this technology and deliver pictures of unsurpassed clarity and brilliance.

However, this extra quality comes at a price: there's much more information involved, and being transferred at a much faster rate - a high definition screen processes 62 million pixels per second, that's around six times more than a standard definition screen. In order to provide content for this new breed of television, Hollywood and the TV studios have had to look to optical storage manufacturers to develop a new breed of disc to capture the new high definition content.

The way we watch television and video is about to change... forever

Q **Why do we need a new format?**

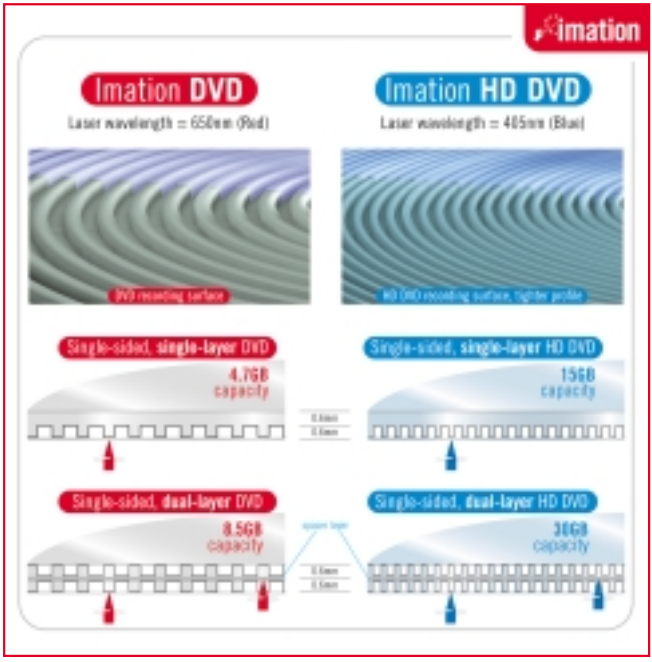
A **Because the way we watch and use TV is about to change dramatically.**

High definition broadcasts are now starting right across Europe. The first big new event will be The World Cup. This whole event is being broadcast in the new high definition format.

Very shortly, the major Hollywood studios will start issuing films in 'High Definition'. These films will appear on Blu-ray and HD DVD discs. In addition satellite broadcasters will be amongst the first to start broadcasting High Definition sports and film content. This new technology is set for rapid adoption by consumers as the price of High Definition Televisions continues to fall and the cost of the new recorders / players continues in the same direction.

HD DVD, governed by the DVD forum (www.dvdforum.org/form.shtml), needed to maintain the mechanical structure of DVD

HD DVD structure is based on existing DVD technology. Take a look at the diagram and you'll see that HD DVD is a compressed version of existing DVD technology thus allowing the delivery of greatly enhanced storage capacity.



HD DVD features and benefits

- Based on proven DVD format and backed by the DVD forum
- Massive storage capacity by increasing size of existing DVD format allowing closer writing
- Downward compatibility means drives will play and read existing DVD and CD formats
- Many Hollywood studios are producing films in HD DVD format
- Technology already in market

Introducing the two new recording technologies that will support HDTV

Common features of HD DVD and Blu-ray

Both employ Blue laser technology. The greater capacity requires smaller pits; smaller pits require smaller read-spots, smaller read-spots require a shorter wavelength. Blue laser technology uses a shorter wavelength (405nm). Both formats have their Read-Only, Writable and Re-Writable sub-formats with the option of single and dual layer versions and there are already multi-layer formats being discussed for the future.

Backwards compatibility

Although it will be necessary to purchase new hardware in order to record and play both Blu-ray and HD DVD discs, most manufacturers have decided to ensure that their players, recorders and drives are capable of reading and writing existing CDs and DVDs, so previous movie and music collections can remain intact.

Blu-ray's main strengths are it's higher capacity which means it will have greater longevity. It also uses standard MPEG-2 so there is no need to compress and decompress video streams.

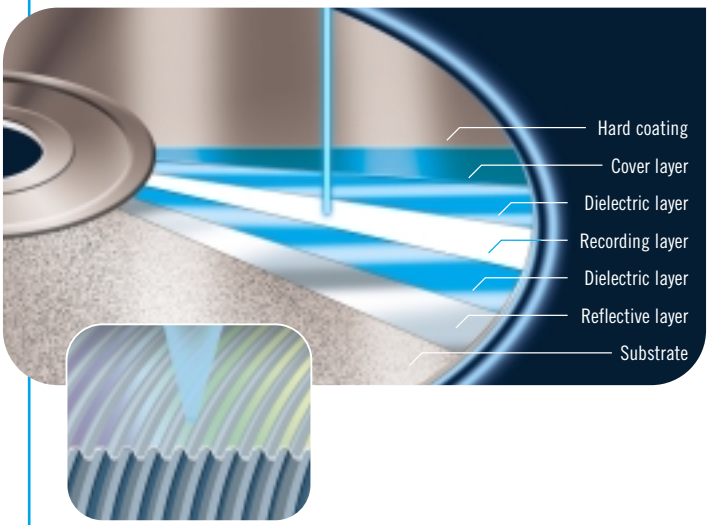
HD DVD's main strengths is that manufacturing is less costly as it uses existing DVD principles.

Owing to the large capacities of both formats they are both likely to become firm favourites for data backup and storage.

www.imation-europe.com/highdefinition

Blu-ray Disc™

Blu-ray (BD), governed by the BD-Association (www.blu-raydisc.com), set out to produce a disc that balanced superior performance with reproducibility



The Blu-ray diagram on the right illustrates the new concept of this technologies' disc structure. Blu-ray is built to different standards and formatted in a new way enabling it to accomodate even greater capacity than HD DVD.

Blu-ray features and benefits

- All new technology that is built around the High Definition platform
- Massive storage capacity
- The latest Blue Disc technology
- Recorders, Drives and Players are backwards compatible with current DVD and CD technologies
- Many of the new game formats are going to use Blu-ray discs
- Very fast access speeds will allow interactive use via broadband web and satellite
- Many Hollywood studios are launching films on the Blu-ray format in 2006
- All popular formats of disc will be available from launch

With all that extra capacity Blu-ray and HD DVD deliver other new data storage possibilities too

With capacities of up to 50GBs Blu-ray and HD DVD are great for large scale storage use too. With up to 50 GBs you'll find both technologies offer vast space saving possibilities. When you think about it, its only a few years ago that your PC would have had a smaller hard drive than the size of one of these new disc technologies!

One thing that will please everyone is that it is likely that several manufacturers will start to produce drives capable of using both new formats.

You'll find new drives and recorders don't just sit under the TV either, they are also available as internal and external drives for your PC. You can either upgrade the internal drive or simply buy a new external one. Remember both Blu-ray and HD DVD drives and recorders are backwards compatible allowing you to use and record both CD and DVD media on either drive type.

Take a look at these two new formats.

You'll find they are ideal for music, data, photography and any other GB-hungry files you have!

Just think, the days of sending people many discs may be gone forever.
With up to 50GBs at hand the future has never looked so future-proof!

Suddenly High Definition video recording is a reality; music and video can be recorded with no loss of quality; games will be far more life-like and vast amounts of data can be stored on just one disc. The 50GB disc is now a reality.

Blu-ray or HD DVD recorder / player

The addition of a surround sound system to produce the fantastic audio quality to accompany the HD video content. Wait 'til you hear what Blu-ray and HD DVD can produce!

Comparison Table

	HD DVD Recorder Drive	Blu-ray Recorder Drive
First described	**2004**	**2002**
Single layer capacity	15GB	25GB
Dual layer capacity	30GB	50GB
Single layer recoding time	2hrs	2hrs
Dual layer recoding time	4hrs	4hrs
Bit rate	65	66
Numerical aperture	0.65	0.85
Data protection layer	0.6mm	0.1mm
Data transfer rate	36.5Mbps	36.5Mbps
Available as ROM (read only)	✔	✔
Available as Re-Writable	✔	✔
Available as Write once	✔	✔

Backwards Compatability

Can I use my existing media to play (▸) or record onto (●)

DVD+R double layer	▸ ●	▸ ●
DVD+RW	▸ ●	▸ ●
DVD-RW	▸ ●	▸ ●
DVD+R	▸ ●	▸ ●
DVD-R	▸ ●	▸ ●
CDRW	▸ ●	▸ ●
CDR	▸ ●	▸ ●

imation

About Imation

Imation Corp. is a leading developer, manufacturer and supplier of magnetic and optical removable data storage media. With one of the broadest product lines in the industry, spanning from a few megabytes to hundreds of gigabytes of capacity in each piece of media, Imation serves customers in more than 60 countries, in both business and consumer markets. From large data centres to distributed networks, Imation's tape cartridges are used in data processing, security, business continuity, backup and archiving applications. Customer needs for reliability, convenience and portability to store and manage business data, photos, video, images and music on professional and home desktops and increasingly in consumer electronics devices drive demand for Imation's optical and diskette products. As a 3M spin off, Imation benefits from 50 years of tape experience and 20 years of optical experience. As an independent company for the last 10 years, Imation's objective has always been to deliver future technology today. With more than 300 technology scientists and nearly 300 patents in the US alone, Imation continue to pioneer today's proven magnetic and optical media technologies. Imation Corp. is located in Oakdale, Minnesota, USA. The European Headquarters is based in Schiphol, The Netherlands.

Europe
Imation Europe BV
Boeing Avenue 333
1119 PH Schiphol-Rijk
The Netherlands
Tel : +31 (0) 20 6542 621
Fax : +31 (0) 20 6542 292
www.imation.co.uk

France
Imation France S.A
35, Boulevard du port
F-95097 Cergy Pontoise cedex
France
Tel : +33 (0) 1 34 35 53 31
Fax : +33 (0) 1 34 35 53 44
www.imation.fr

Germany
Imation Deutschland GmbH
Stresemannallee 4b
41460 Neuss
Germany
Tel : +49 (0) 2131 226 271
Fax : +49 (0) 2131 226 116
www.imation.de

Italy
Imation Italy
Palazzo Verrocchio
Centro Direzionale Milano 2
20090 Segrate MI
Italy
Tel : +39 02 210431
Fax : +39 02 21043 900
www.imation.it

Benelux
Imation Europe BV
Boeing Avenue 333
1119 PH Schiphol-Rijk
The Netherlands
Tel : +31 (0) 20 6542 600
Fax : +31 (0) 20 6542 290
www.imation.nl

Spain
Imation Iberia, S. A.
Antonio Gonzalez Echarte, 1
28029 Madrid
Spain
Tel : +34 91 382 8405
Fax : +34 91 382 8422
www.imation.es

United Kingdom
Imation UK Ltd
Century Court
Millennium Way
Bracknell, Berkshire
RG12 2XT
United Kingdom
Tel : +44 (0) 1344 402 200
Fax : +44 (0) 1344 402 294
www.imation.com/uk

Middle East
Imation Middle East
PO Box 61 375
Jebel Ali, Dubai
United Arab Emirates
Tel : +971 4 8818 008
Fax : +971 4 8815 226
www.imation.ae

Europe – International
Bulgaria: www.imation.bg
Czech Republic: www.imation.cz
Denmark: www.imation.dk
Finland: www.imation.fi
Greece: www.imation.gr
Hungary: www.imation.hu
Norway: www.imation-norway.com
Poland: www.imation.pl
Romania: www.imation.ro
Russia: www.imation.ru
Sweden: www.imation.se
Turkey: www.imation.com.tr

Find out more at:

www.imation-europe.com/highdefinition

- For up to the minute information on the latest high definition news you'll find this a useful 'one stop shop'
- See detailed comparisons on the competing disc technologies, as Imation are manufacturing both you'll get impartial advice
- See what competitions are running, you could win fantastic high definition prizes
- Find out the latest information on compatibility

Imation – not all high definition is the same